

GAIN CONTROL FOR DELTA SIGMA ANALOG-TO-DIGITAL CONVERTER

ABSTRACT OF THE DISCLOSURE

Gain control for delta sigma analog-to-digital converter. A method is disclosed for driving the input of an integrator in a delta-sigma converter having an amplifier with a non-inverting input, an output and a positive input connected to a reference voltage and an integration capacitor connected between the non-inverting input and the output. An input voltage is sampled at a first rate onto an input sampling capacitor and then charge is dumped from the input sampling capacitor to the non-inverting input of the amplifier at a second time and at the first rate. A reference voltage is sampled onto a feedback sampling capacitor at substantially the first rate, and charge stored on the feedback sampling capacitor is dumped to the non-inverting input of the amplifier at a second rate different than the first rate. The amount of time that charge is dumped from the feedback sampling capacitor is controlled to be substantially equal to the amount of time that charge is being dumped from the input sampling capacitor, wherein varying the second rate relative to the first rate changes the gain of delta-sigma converter